

ABSTRACT OF THE DISCLOSURE

The systems and methods according to this invention disclose that coverage for an ad hoc sensor network is fundamental to the deployment and utilization of such networks. The invention provides a method which characterizes the coverage of an ad hoc sensor network by defining a sensing field over the space within which the physical phenomenon of interest occurs. Its value at any given point reflects the ability of the sensor network to estimate the phenomenon and/or event, of interest at this point. A statistical method is presented to determine such a field based on sensor layouts and sensor models. The system and methods of the invention define well monitored regions and sensor holes, information that can be used to characterize the quality of service that the network provides for different applications. A graphical user interface may be provided to display this information to the user for monitoring in health management of the network. The systems and methods of the invention apply to fixed as well as mobile sensors.